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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/631,709    08/03/00    KOIZUMI

S    766.37

005514    HM22/0619  
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EXAMINER

OZGA, B

ART UNIT

PAPER NUMBER

1651

DATE MAILED:    06/19/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trad marks**

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/631,709	KOIZUMI ET AL.	
	Examiner	Art Unit	
	Brett T Ozga	1651	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 6,7,18,19,21,22,33 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-17, 20 and 23-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claims 1-34 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- |   |  |
|---|--|
| 15) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 20) <input type="checkbox"/> Other:  |

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## DETAILED ACTION

### *Election/Restriction*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-5, 8-17, 20 and 23-32, drawn to methods of producing GDP, classified in class 435, subclass 105.
- II. Claims 6, 7, 18, 19, 21, 22, 33 and 34, drawn to processes involving transformants, classified in class 435, subclass 252.3.

Group I does not involve recombinant DNA, while group II does. The methods are patentably unrelated because one could produce GDP without using transformants.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Lawrence Perry on 10/13/2000, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-5, 8-17, 20 and 23-32. Affirmation of this election must be made by applicant in replying to this Office action. Claims 6, 7, 18, 19, 21, 22, 33 and 34 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country; more than one year prior to the date of application for patent in the United States.

Claims 1-4, 8-10, 13, 20, 23-25 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto et al. (Agric. Biol. Chem. 48(3) 823-4 (1984)).

The instant application claims a process for producing GDP (guanosine 5'-diphospho)-fucose, with GDP 4-keto-6-deoxymannose (GKDM) as an intermediate, using a microorganism (such as *E.coli.*) as an enzyme source.

Yamamoto et al. teaches a process for producing GDP (guanosine 5'-diphospho)-fucose, with GDP 4-keto-6-deoxymannose (GKDM) as an intermediate, using a microorganism as an enzyme source.

They also teach GMP as a GTP precursor. (See col. 1, paragraph 2)

They also teach the saccharide as glucose or mannose. (See col. 1, paragraph 2)

The reference anticipates the claimed subject matter.

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***Claim R jections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 8-17, 20 and 23-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (Agric. Biol. Chem. 48(3) 823-4 (1984)) in view of Sturla et al. (FEBS Letters 412 (1997) 126-30)

The instant application claims a process for producing GDP (guanosine 5'-diphospho)-fucose, with GDP 4-keto-6-deoxymannose (GKDM) as an intermediate, using a microorganism (such as *E.coli.*) as an enzyme source.

Yamamoto et al. teach a process for producing GDP (guanosine 5'-diphospho)-fucose using a microorganism. (See abstract.)

They also teach the process wherein the intermediate is GKDM.

They do not teach the process with *E. coli* having strong "wcaG" or "gmd" activity.

Sturla et al. teach the process with *E. coli* having strong "wcaG" activity. They also teach a microorganism having a strong activity of "gmd". (See abstract.)

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Though not expressly taught, it would have been obvious to choose *Corynebacterium* as the genus in the processes as it is the produced sugar, not the bacterium itself, that it ultimately desired.

It would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of Yamamoto et al. by the addition of *E. coli* having strong "gmd" and "wcaG" activity to obtain the advantages of such as disclosed, namely the avoidance of inhibition of the activity of GDP-mannose 4, 6 dehydratase by GDP-fucose. Thus, in view of the cited references, the artisan of ordinary skill would have been motivated to have practiced the process as recited in the claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brett T Ozga whose telephone number is 7033050634. The examiner can normally be reached on M-F 0530-1500, 2nd Wednesday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 7033084743. The fax phone numbers for the organization where this application or proceeding is assigned are 7033084242 for regular communications and 7033053014 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 7033080196.



LEON B. LANKFORD, JR.  
PRIMARY EXAMINER